

## PATHOLOGY AND BACTERIOLOGY

UNDER THE CHARGE OF

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**Streptothrix in Bronchopneumonia in Rats Similar to That in Rat-bite Fever.**—Through the work of Blake attention has been called to a type of streptothrix which is probably the infecting organism in rat-bite fever. Since this report there have been too few cases to finally establish the common nature of the infection for all. The question of the origin of the streptothrix in the rat still remains unsolved. TUNNICLIFFE (*Jour. Infect. Dis.*, 1916, xix, 767) brings forward evidence to indicate that the rat is a carrier of this infection and is subject to bronchopneumonia from this source. Chronic bronchopneumonia was encountered in 60 white rats and in 56 of these a filamentous organism was observed in smear preparations. Cultures of a streptothrix were gained from 20 of these animals. This streptothrix was pathogenic in a number of normal animals inoculated. The microorganism corresponds morphologically and culturally with the *Streptothrix muris-ratti* as described by Blake. The infected animal showed an increase in opsonins and agglutins for this microorganism.

**Experimental Arteriosclerosis of the Aorta and the Coronary Arteries of the Heart.**—KNYLOV (*Compt. rendus de la Soc. biol.*, 1916, lxxix, 397) experimented on rabbits with the object of verifying the work of several previous writers, who maintained that the feeding of cholesterol or of food rich in cholesterol to rabbits produced in them characteristic changes similar to those observed in atheroma in man. The author fed his rabbits yolks of eggs, varying from 182 to 198 grams in quantity, and cholesterol, varying from 40 to 50 grams; then let them rest two weeks to six months. During the period of rest, fats and lipid substances, particularly the doubly refracting ones, accumulated in the deep portion of the intima which was divided into two parts; a compact layer poor in cells but rich in collagenous and elastic fibers with few muscular elements and no fat, and below this a varying but always considerable quantity of fats and lipoids. These substances in the liver, spleen, and bone marrow are absorbed during the period of rest; in the aorta, however, conditions exist which are particularly unfavorable to their reabsorption, a fact which plays an important part in the development of arteriosclerosis. The predominating cellular

elements of the layer rich in fats are phagocytes of cholesterol, which undergo fatty degeneration and final calcification. The author further established the fact that, as in human atheroma, the process extended from the aorta to the smaller arteries, especially the coronaries. Limited to certain parts of the wall in the large arteries, it often spread over the whole surface of the small arteries and extended even to their finest ramifications. It began in a thickening of the intima by a deposit of fat and doubly refracting lipoids under the endothelium and with increased deposit led to the narrowing of the lumen. In the thickened intima variable quantities of cellular and muscular elements appeared in the process of degeneration. A period of rest after feeding had the effect of increasing the cellular elements in the tissues infiltrated by fat. The elastic tissue played a large part in the encroachment of the areas and the thickened intima of the vascular wall became a permanent characteristic.

**A Note on Experimental Nephropathy.**—STODDARD and WOODS (*Jour. Med. Res.*, 1916, xxxiv, 343). The endotoxins of streptococci isolated from meningitis, or staphylococci from osteomyelitis, and the poisons of Vaughan's split products of the tubercle bacillus were daily injected intravenously or subcutaneously into rabbits for twenty to twenty-six days. The rabbits were then killed and autopsied immediately. The kidney lesions consisted essentially in an epithelial degeneration of the first division of the proximal convoluted tubules, with thickening and edema of the protoplasm and loss of the cellular membrane between adjacent cells, a diffuse process bordering on protoplasmic disintegration leading to a finely granular debris in the lumen of the tubule. The cells of the ascending loop of Henle contained a granular yellowish brown pigment. The distal portion of the convoluted tubules remained normal. These lesions were observed following the action of the poisons of the tubercle bacillus. The staphylococcal and streptococcal endotoxins, prepared according to the technique of Macfadyen, produced different lesions from those just described and consisted in vacuolar degeneration with transformation of the epithelial cells into a tabule resembling fat tissue. This process was seen especially in the proximal and middle portions of the proximal convoluted tubule. There were no membranous lesions; the glomeruli appeared normal except for occasional slight thickening of the capsular and capillary walls. These changes differed according to the duration of the intoxication; the treatment with tuberculous products lasted twenty days. Rabbits received several inoculations of cocci heated to 56°, and killed in physiological salt solution. The authors call attention to the fact, however, that the lesions produced by proteoic extracted by Vaughan's method, differed from those reported by Longcope and Boughton.

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